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(71) Applicant (for all designated States except US): **DELPHI TECHNOLOGIES, INC.** [US/US]; P.O. Box 5052, Troy, MI 48007 (US).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **GOAT, Christopher, Andrew** [GB/GB]; Walnut Tree, North Meadow, Offham, West Malling, Kent ME19 5NU (GB).

(74) Agents: **KELTIE, David, Arthur et al.**; David Keltie Associates, Fleet Place House, 2 Fleet Place, London EC4M 7ET (GB).

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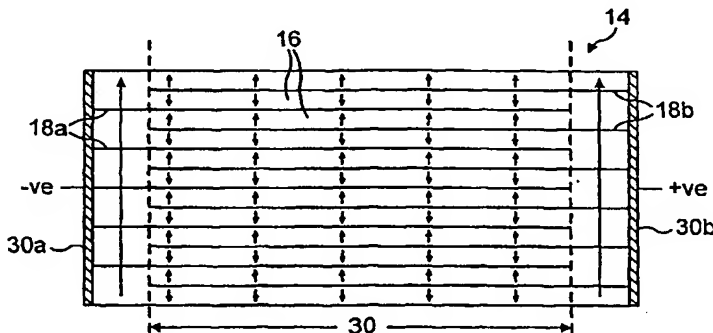
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(54) Title: **METHOD OF POLING FERROELECTRIC MATERIALS**



(57) **Abstract:** A method of poling a ferroelectric sample (14) of the type suitable for use in an actuator for an injection arrangement comprises the steps of providing a sample of ferroelectric material having first and second opposing end faces (23), first and second opposing side faces (21), and a stack of ferroelectric layers (16), wherein adjacent layers are separated from one another by internal electrodes (18a, 18b) arranged substantially parallel to the end faces (23) of the sample (14), and applying a primary external electrode arrangement (24a, 24b) to the first and second end faces (23) of the sample (14). A primary poling voltage is applied to the primary electrode arrangement (24a, 24b) so as to polarise substantially the entire ferroelectric sample along a single, first polarisation axis in a first polarisation direction. A secondary external electrode arrangement (30a, 30b) is applied to the side faces (21) of the sample (14), and a secondary poling voltage is applied to the secondary external electrode arrangement (30a, 30b) so as to polarise alternate ones of the ferroelectric layers (16) within those regions of the sample located between internal electrodes of opposite polarity. Alternate ones of the ferroelectric layers are polarised along substantially the first polarisation axis in the first polarisation direction and the others of the ferroelectric layers are polarised along a second, oppositely directed polarisation axis. The method provides a way of polarising substantially the entire sample whilst substantially avoiding discontinuities in ferroelectric strain throughout the sample (14), and particularly those regions adjacent to the side faces (21).